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ABSTRACT

Employment in nursing homes is projected to increase from 583,000 in 1973 to 1,036,000 in 1985. Substantially more workers are expected to be employed in nearly all occupations. The projected growth of 78% is faster than that expected in any segment of the health industry. Most nursing home employees are service workers. Two of these occupational classifications, practical nurses and nursing aides, orderlies, and attendants, accounted for over half of total employment in 1973. For many occupations in nursing homes, annual openings resulting from the need to replace workers who leave the labor force are expected to be more significant than those resulting from employment growth. An analysis of employment growth and the supply-demand situation for key occupations in the nursing home industry indicated that nursing homes should be able to meet their manpower needs provided that wages, benefits, hours, etc., will be competitive in the job market. An appendix describes the methods used by the Bureau of Labor Statistics to project manpower requirements in key nursing home occupations based on its program for developing projections for the entire economy's industrial and occupational structure. (JT)

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No. 1

Manpower Needs In The Field of Aging: The Nursing Home Industry

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HIGHLIGHTS

- Employment in nursing homes is projected to increase from 583,000 in 1973 to 1,036,000 in 1985. Substantially more workers are expected to be employed in nearly all occupations.
- The projected growth of 78 percent is faster than that expected in any segment of the health industry.
- Most nursing home employees are service workers. Two of these occupational classifications, practical nurses and nursing aides, orderlies, and attendants, accounted for over half of total employment in 1973.
- For many occupations in nursing homes, annual openings resulting from the need to replace workers who leave the labor force are expected to be more significant than those resulting from employment growth.
- An analysis of employment growth and the supply-demand situation for key occupations in the nursing home industry indicates that nursing homes should be able to met their manpower needs provided that wages, benefits, hours, etc., will be competitive in the job market.

FOREWORD

The Older American Comprehensive Services Amendments of 1973 directs the Commissioner on Aging to (1) develop information on both current and future needs for workers in the field of aging; (2) provide a broad range of quality training and retraining opportunities, responsive to changing neds of programs in the field of aging; (3) attract a greater number of qualified persons into the field of aging; and (4) help make training programs more responsive to the needs of workers in the field of aging. The Commissioner must also prepare an annual report appraising the adequacy of the Nation's current and future personnel needs in the field of aging.

The information currently available on manpower is limited, however, thereby weakening the ability of the Commissioner on Aging and the Administration on Aging, (AoA) to carry out these activities. Because of the Bureau of Labor Statistics's (BLS) long experience in analyzing manpower needs, the AoA asked the BLS to help develop the needed manpower information.

This report was prepared by the Bureau of Labor Statistics to assist the Administration on Aging. It presents an analysis of the manpower needs of nursing homes, as well as an analysis of future supply-demand conditions for several "key" occupations in the nursing home industry. The nursing home industry was selected for analysis for several reasons. It is the one identifiable industry that mainly serves the elderly, data are available on which to base an analysis, and public attention is currently focused on nursing homes.

It is hoped by the Administration on Aging that the publication of the information included in this report will be of use to professionals, practitioners and policy makers concerned with manpower developments in the field of aging.

INTRODUCTION

This report starts with a discussion of the growth of the nursing home industry over the last decade, followed by an analysis of the current employment and projected manpower requirements in the industry over the 1972-85 period.

The last section of the report presents supply-demand information for some of the key occupations in the industry. These data are presented on an economy-wide basis, in order to place nursing home industry employment in the over all context of the economy and provide some rough ideas of potential manpower problems.

The projections of employment requirements presented in this report were developed as part of the Bureau of Labor Statistics' program for developing projections of the entire economy's industrial and occupational structure. The methodology used to develop these projections is very complex. Beginning with projections of the population that are developed by the Bureau of the Census, a series of steps are followed in which projections are developed of the labor force, output per man-hour, gross national product, the composition of demand, output and productivity for detailed industries, industry employment, and finally, occupational employment by industry. (See appendix A for a detailed discussion of the projection methods.)

The Bureau's basic procedure used to develop occupational projections is to apply projections of the occupational structure for each industry in the economy to projected industry employment. Projections of many occupations, however, are developed by analyzing the relationship of employment in the occupation to key independent variables. In this process, (1) factors that affect demand for the occupation are identified and projected; (2) their relationship to demand for the occupation are projected in statistical terms; and (3) demand for the occupation is projected on the basis of these relationships. In this analysis as well as in projecting occupational ratios by industry, modifications of past trends are made to reflect judgments on the effect of new developments. In developing projections of health manpower, for example, judgments were made about the effect of such factors as (1) the use of personnel in health services at their highest level of competence in order to cut costs and cope with shortages of professional personnel and (2) an increase in rehabilitative services provided to residents of nursing homes, including occupational therapy, physical therapy, and recreational therapy.

The Bureau's projections are based on a number of general assumptions. The following are some of the most significant assumptions that underlie the projections presented in this report:

(1) Fiscal, monetary, and manpower training and educational programs will achieve a satisfactory balance between relatively low unemployment and relative price stability, permitting achievement of the long-term economic growth rate.

(2) The institutional framework of the American economy will not change radically.

(3) Economic, social, technological, and scientific trends will continue, including values placed on work, education, income, and leisure.

(4) Federal transfer payments were assumed in line with the provisions of Federal legislation through 1975. After that, transfer payments are assumed to increase in accord with (a) the rate of increase of the population over 62; (b) the rate of price increase; and (c) expansion of 3 percent a year to cover increased coverage of real benefits.

Significant deviation from the assumptions would result in changes in the employment projections. For example, major changes in the methods and patterns of delivery of services in nursing homes could affect the occupational mix of employees. Emphasis on out-of-hospital service could increase utilization of nursing homes, while emphasis on home health care could decrease the utilization of nursing homes.

CHAPTER 1

The Nursing Home Industry

Definition and Scope

The nursing home industry, as covered in this report, includes only institutions classified by the National Center for Health Statistics (NCHS)[1] as nursing care homes and personal care homes with nursing. This encompasses inpatient facilities in which personal care is the primary and predominant function but some nursing care is also provided, as well as those in which nursing care is the primary and predominant function. Other inpatient facilities which provide nursing or medical care such as some homes for the mentally retarded or emotionally disturbed are excluded from the scope of this report. A National Center of Health Statistics study reports 89 percent of the patients in nursing or personal care homes in 1969 were age 65 years or older.[2] Thus, employment requirements in nursing homes represent a major aspect of future needs for workers in the field of aging.

Industry Growth—Review of Demand Factors

Employment in nursing homes increased by about 116 percent from 1964 to 1973, from about 270,000 in 1964 to 366,000 in 1967, and to 583,000 in 1973. The number of nursing homes and personal care homes with nursing increased 26 percent from 1963 to 1971. During this same period, however, the bed capacity increased 119 percent, reflecting the trend toward larger institutions. Table 1 shows that all of this growth was in the nursing care institutions, while the number of personal care homes with nursing actually decreased. When nursing care institutions are isolated from the total, the rate of increase jumps to 58 percent for facilities and 187 percent for beds.

These trends primarily reflect Medicare provisions which provide money to the elderly for a three- to four-month period of post hospital care in eligible nursing homes. Eligible nursing homes are those designated as extended care facilities because they have the staff and facilities to offer rehabilitative and restorative care. This has encouraged the expansion of these nursing home facilities and the decline in personal care homes with nursing, which do not offer the rehabilitative care required for eligibility for medicare payments.

The very rapid growth in nursing home facilities is the result of a combination of factors. Necessitating factors (those which have created the need for growth in nursing home facilities) include the increase in the elderly population as well as the breakdown in the historical pattern of family care and the provision for its aged members.[3] Enabling factors (those which make the use of nursing home financially possible) include Medicare and Medicaid, growth in private insurance, and an increasing portion of national health expenditures used for the elderly.

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[1] Paul W. Earle, "The Nursing Home Industry," *Hospitals, Journal of the American Hospital Association*, February 16, 1970, p. 47.

[2] *Inpatient Health Facilities as Reported From the 1971 MFI Survey*, DHEW Publication No. (HRA) 74-1807, Series 14, No. 2, March 1974. p. 56.

[3] *Characteristics of Residents in Nursing and Personal Care Homes, U.S.—June-August, 1969*, DHEW Publication No. (HSM) 73-1704, Series 12, No. 19, February 973, Table B, p. 3.

Table 1. Nursing home industry beds and homes by type of facility, selected years 1963-1971

	HOMES				BEDS			
	1963	1967	1969	1971	1963	1967	1969	1971
All nursing	13,086	14,489	14,998	16,439	507,530	765,148	879,091	1,110,054
Nursing care	8,128	10,636	11,484	12,871	319,224	584,052	704,217	917,707
Personal Care with nursing	4,958	3,853	3,514	3,568	188,306	181,096	174,874	192,347
Average bed capacity	39	53	59	68				

SOURCE: Department of Health, Education, and Welfare.

Necessitating Factors

The elderly population in the United States is an important component of the demand for nursing home care. Between 1960 and 1973, persons 65 years and older increased at an annual rate of 1.9 percent, from 16,675,000 to 21,329,000.[4] This group is expected to grow at an annual rate of 1.7 percent between 1973 and 1980 and 1.5 percent from 1980 to 1985, reaching 24,051,000 in 1980 and 25,924,000 in 1985.[5] This alone results in a substantial increase in demand for care in nursing homes.

Elderly persons also are growing as a percent of the total population. Persons 65 years and older grew from 8.1 percent of the population in 1960[6] to 10.1 percent in 1973, and this group is expected to comprise 10.7 percent by 1980 and 11.0 percent by 1985.[7]

While the elderly are growing in numbers and percent of the population, the trend away from living with younger family members also continues. Many grandparents no longer have an integral place in the urban home life style.[8] While many elderly persons are proud of and treasure their independence, new demand for services which would have been provided by the family result.[9] This is especially the case when illness makes special care necessary. The availability of nursing homes today makes this a frequently used alternative.

Enabling Factors

At a time when the need for nursing homes is growing, the ability to pay for these services also is increasing. The extensive impact of Medicare and Medicaid is illustrated by the fact that the Federal government pays more than $2 billion a year to the nursing homes that qualify for these payments. This is two-thirds of the cost of care for the residents of these homes.[10] The public medical programs of Medicare and Medicaid account for almost all of the recent shift in source of funds spent for medical care, as well as some of the increase in these expenditures. Medicare's health insurance for the aged became effective in fiscal year 1967. By 1972 the annual amount spent by Medicare was more than the total health bill for the aged in 1966.[11]

The percent of personal health expenditures for persons 65 years and over that the government paid grew from 30 percent in fiscal year 1966 to 64 percent in fiscal year 1973 (Chart 1). At the same time the portion paid by direct payments decreased from 53 percent to 30 percent and private health insurance decreased from 16 percent to 6 percent. In other words, of the $1,052 spent, on the average, for each person 65 years and older for personal health care in 1973, about two dollars out of every three were paid by public money while consumers paid most of the third dollar out of their own pockets. About two-thirds of the public funds spent for this age group were Medicare payments.[12] In contrast, an average of $384 was spent on each person age 19 to 64 and $167 on each person under age 19 in fiscal year 1973. For both of these age groups, only about one dollar out of every four was paid by public money, while consumers paid the other three out of their own pockets.[13] (Chart 2.) In 1973, 28 percent of the nation's personal health care expenditures were for the care of the 10 percent of the population who are 65 or older. The reverse situation exists for the under 19 age group,

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[4] *Current Population Reports, Population Estimates and Projections*, Series P-25, No. 519 (Bureau of Census, April, 1974) Table 1, pp. 12, 25.

[5] Based on series E projections of the U.S. Bureau of the Census (2.1 fertility rate). *Current Population Reports, Population Estimates and Projections*, Series P-25, No. 493, (Bureau of the Census, 1972), pp. 18-9.

[6] *Current Population Reports*, No. 519.

[7] *Current Population Reports*, No. 493.

[8] Donald F. Phillips, "Reality Orientation," *Hospitals, Journal of the American Hospital Association*, July 1, 1973, p. 47.

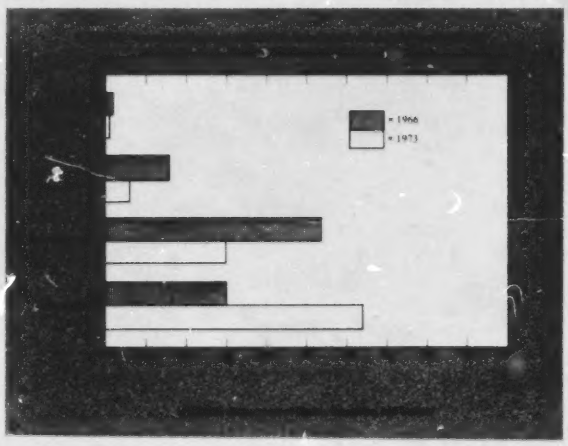
[9] Louis J. Novick, "Day Care Meets Geriatric Needs," *Hospitals, Journal of the American Hospital Association*, November 16, 1973, p. 47.

[10] Jonathan Spivak, "New Plans to Issue Regulations to Improve Safety and Medical Care at Nursing Homes," *The Wall Street Journal*, January 14, 1974, p. 8.

[11] Barabara S. Cooper and Paula A. Piro, "*Age Difference in Medical Care Spending, Fiscal Year 1973*," Social Security Bulletin, May 1974, p. 11.

[12] *Ibid*, p. 10.

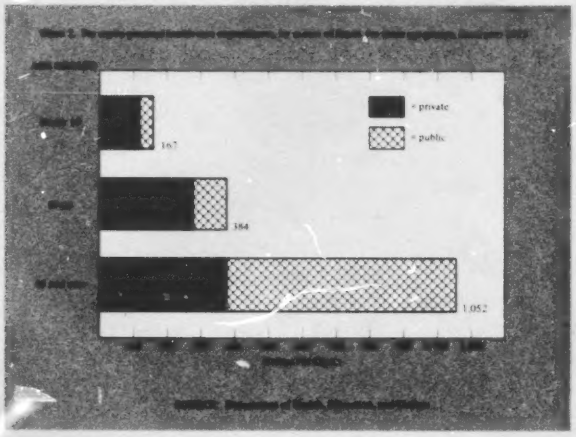
[13] *Ibid.*, p. 12.

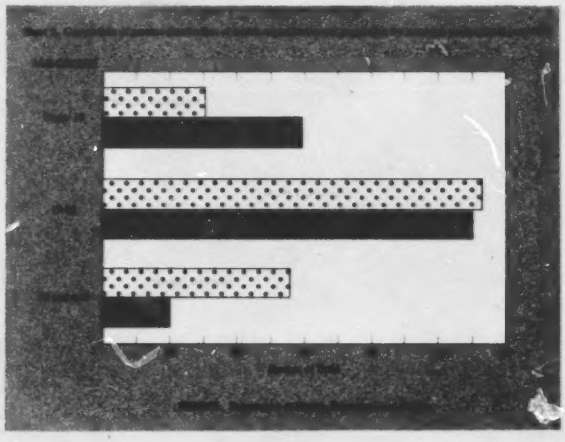


where only 15 percent of the Nation's personal health care expenditures were spent for the care of 35 percent of the population. Persons age 19 to 65, on the other hand, expended about the same percent of the nation's personal health care expenditures as they comprise of the population.[14] (Chart 3.)

Since Medicaid is a program for persons with a low income, many persons over 65 years qualify for Medicaid as well as Medicare. Most of the public funds spent for the health care of this age group which are not Medicare payments come from the Medicaid program.[15]

[14] *Ibid*, p. 3.
[15] *Ibid*, p. 5.





CHAPTER 2

Current Employment and Projected Requirements

Nursing homes employed 583,000 persons in 1973. By 1980 they are expected to employ 873,000 persons, and by 1985 the nursing home employment may reach 1,036,000 (Table 2). Projected manpower requirements in nursing homes were developed within the framework of the Bureau of Labor Statistics overall economic and manpower projections. (The overall assumption and projection methodologies used by the Bureau are outlined in The U.S. Economy in 1985, Bulletin 1809, U.S. Department of Labor, Bureau of Labor Statistics, 1974.) Within this overall framework, the projections of nursing home industry employment requirements basically reflect the anticipated increase in the number of persons 65 years and older, a continuation of the trend for the elderly away from living with younger family members, present patterns of Medicare and Medicaid, and a continuation in the proportion of the Nation's personal health expenditures that are for the care of those 65 years of age and over.

In 1973, about 88 percent of all nursing home employees worked in privately owned nursing homes. Almost nine percent were employed in government—primarily State and local—operated nursing homes, and the remaining three percent were self-employed or unpaid family workers. The proportion in privately owned nursing homes is expected to continue to increase in line with past trends and comprise slightly over 90 percent of the industry by 1985. All categories of government workers in nursing homes, while increasing in absolute numbers during the 1972-85 period, are expected to decrease as a percent of total employment. The expansion of facilities are expected to continue to take place primarily in the private sector. As the average size of nursing homes continues to increase, the numbers of self-employed (owner/manager) and unpaid family workers in nursing homes is projected to decline as a percent of total industry employment despite a slight increase.

The projected annual rate of increase in employment in nursing homes is 5.9 percent from 1973 to 1980 and 3.5 percent from 1980 to 1985. This is faster than any of the other health industries,[16] and compares with 4.1 percent from 1973 to 1980 and 2.6 percent from 1980 to 1985 in all the health industries combined. As a result, nursing homes are projected to comprise a larger portion of total employment in the combined health industries, rising from 11.0 percent in 1973 to 12.5 percent in 1980 and 13.0 percent in 1985. The slowing trend from 1980 to 1985 is in line with the economy as a whole.[17] It also reflects the slowing of the rate of growth of the population 65 and over.

Nursing nome industry employment has the highest ratio of service workers and the lowest ratio of professional, technical, and kindred workers of all the health industries.[18] More than three employees out of four in nursing homes are classified as service workers; most of these are health service workers (table 3). On the other hand, only about one employee in ten is a professional or technical worker, since the care provided in nursing homes generally consists of more routine tasks for which professional training is not required. The portion of clerical workers also is lower in this industry than any other health industry (about four percent in 1973). This reflects the low turnover of patients, requiring less paperwork, as compared to hospitals, clinics, or offices of practitioners. The ratio of nursing home industry employees who are managers, officials, or proprietors, about one in 20 workers, is twice as large as hospitals due to the small relative average size of nursing homes. The ratio of operatives to nursing home industry employment is about the same as in hospitals and other health service institutions (roughly two percent). The other three groups—salesworkers, craftsworkers and laborers, except farm—are of little importance, each representing less than one percent of the total industry employment.

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[16] The health industries in this report are those listed in the 1970 Dicennial Census: offices of physicians; offices of dentists, offices of chiropractors; hospitals; convalescent institutions; health practitioners, not elsewhere classified (n.e.c.); and health services, n.e.c. The nursing home industry discussed in this report is essentially the same as the census convalescent institutions industry. See Appendix A for technical differences.

[17] Jack Alterman, "An Overview of BLS Projections," *Monthly Labor Review*, December, 1973, p. 3-7.

[18] The occupational distributions of the health industries is pre-published data from *The National Industry-Occupational Matrix 1970, 1980, and 1985*, (Bureau of Labor Statistics), revised to reflect the industry classification in the 1970 decennial census.

Table 2. Nursing home industry employment by class of worker, 1973 and projected 1980 and 1985

Year	Total	Wage and Salary				Self-employed and Unpaid Family
		Private[a]	Government			
			Federal	State	Local	
Employment						
1973	583,010	513,050	2,330	19,820	29,730	18,070
1980	872,900	788,220	2,620	23,570	40,150	18,330
1985	1,035,750	939,430	3,110	29,000	45,570	18,640
Percent						
1973	100.0	88.0	.4	3.4	5.1	3.1
1980	100.0	90.3	.3	2.7	4.6	2.1
1985	100.0	90.7	.3	2.8	4.4	1.8

[a]Adjusted for unpaid absences and multiple job holders.

NOTE: Because of rounding, some of individual items may not equal totals.

SOURCE: Bureau of Labor Statistics.

Table 3. Nursing home industry employment, by occupational group, 1973 and projected 1980 and 1985

Occupational Group	1973	1980	1985
Total, all occupations	583,010	872,900	1,035,750
Professional, technical, kindred	61,100	78,470	90,420
Medical workers, except technical	50,140	59,360	67,940
Health technologists and technicians	1,340	2,270	2,900
Managers, officials, proprietors	32,180	51,150	66,700
Sales workers	350	520	520
Clerical workers	22,970	39,540	49,720
Craft and kindred workers	4,960	7,420	8,910
Operatives	12,130	18,070	21,440
Service workers	446,590	673,610	793,180
Cleaning service workers	49,610	86,770	117,040
Food service workers	71,420	94,450	105,340
Health service workers	311,330	465,950	534,860
Personal service workers	12,880	24,880	34,280
Laborers, except farm	2,740	4,100	4,870

NOTE: Because of rounding, some individual items may not equal total.

SOURCE: Bureau of Labor Statistics.

Table 4. Percentage distribution of employment in the nursing home industry, by occupation group, 1973 and projected 1980 and 1985

Occupation group	1973	1980	1985	Percentage point change 1973-1985
Total, all occupations	100.00	100.00	100.00	
Professional, technical, kindred	10.48	8.99	8.73	−1.75
Managers, officials, proprietors	5.52	5.86	6.44	+ .92
Sales workers	.06	.06	.05	− .01
Clerical workers	3.94	4.53	4.80	+ .86
Craft and kindred workers	.85	.85	.86	+ .01
Operatives	2.08	2.07	2.07	− .01
Service workers	76.60	77.17	76.58	− .02
Laborers, except farm	.47	.47	.47	

SOURCE: Bureau of Labor Statistics.

Very little change is expected in the occupational distribution of the nursing home industry employment between 1973 and 1985, as is indicated in table 4. Most of the shifts are in line with projected trends throughout the economy.[19] The main exception is the relative decline, from 10.48 to 8.73 percent of total industry employment, projected for professional and technical workers. This, however, is consistent with all health industries combined reflecting the increasing productivity of health professionals and the trend to allocate routine tasks to auxiliary workers. The decline in the relative importance of professional workers is offset by the increasing relative importance of managers and clerical workers, made necessary by the growing amount of government reimbursement that requires high standards of operation and more detailed paperwork.

Key Occupations

Occupations in the nursing home industry were identified in this report as key occupations if they met two criteria: (1) they must be a significant percent of the total nursing home employment; and (2) a significant percent of the persons in that occupation must be employed in nursing homes. When planning for future manpower needs, those occupations which require specific formal education (professional and technical) are of the greatest concern. For this reason, these occupations were considered "key" if they comprised at least 0.1 percent of the total industry. All other occupations were "key" if their ratios to total industry employment were at least 1.0 percent. In addition, in order to be considered "key" at least 1.0 percent of total employment in the occupation must be in nursing homes. Only occupations meeting both of these tests were listed here as key occupations.[20]

By this definition, health practitioners are not defined as key occupations. Although physicians, dentists, optometrists, chiropractors, and podiatrists often perform services in nursing homes, few are actually employed full time by institutions. Most health practitioners are self-employed in their own offices and extend part of this practice to residents of nursing homes. In the Standard Industrial Classification and the Census breakout of the health industries, these health practitioners are listed in offices of physicians, offices of dentists, etc. Only those whose major place of employment is in nursing homes would be included in the count of nursing home employees.[21]

[19] Neal H. Rosenthal, "Projected Changes in Occupation," *Monthly Labor Review*, December, 1973, pp. 18-26.

[20] Major occupational groups and subgroups, as well as any occupations making up at least 0.05 percent of employment in nursing homes, are shown in Appendix B.

[21] Since the research was completed for this report, new regulations were published in the *Federal Register*, October 3, 1974, that require a medical director for skilled nursing facilities. The impact on requirements for physicians cannot be determined at this time. Only physicians who accept such a position as their primary work would be included in the employment in nursing homes. This points out the need to develop a more comprehensive approach to the needs of the elderly than analysis of a single industry.

Professional and Technical Workers

Four key occupations fall under the professional and technical category. The greatest number of professional medical workers in nursing homes are registered nurses—42,440 representing about 7.3 percent of the industry employment in 1973. About six percent of all RN's are employed in nursing homes.

Requirements for RN's in nursing homes are expected to reach 46,180 by 1980 and 51,270 by 1985.[22] Although projected to grow in absolute numbers, they are projected to decline as a percent of total industry employment to about 5.3 percent by 1980 and 5.0 percent by 1985. The requirements for RN's are expected to grow more slowly than the total nursing home industry because of the health industry's renewed emphasis on using health manpower at its highest level of competence. Although State licensing laws prohibit persons from performing functions for which they are not prepared, many of the duties presently performed by RN's legally and responsibly can be carried out by practical nurses or nursing aides.[23]

As nursing homes improve their services to the elderly, various types of therapy such as physical and occupational therapy become an important part of a daily program. The requirements for *therapists* in nursing homes are projected to increase from 4,660 to 1973 to 9,340 in 1930 and 12,430 in 1985. About four percent of all therapists are employed in nursing homes. Reflecting this very rapid growth, therapists as a percent of total industry employment are projected to increase from 0.8 percent in 1973 to 1.20 percent by 1985.

The employment requirements for *dietitians* are expected to increase slightly, from 2,450 in 1973 to 2,970 in 1980 and 3,110 by 1985. This relatively slow growth in a rapidly growing industry is the result of (1) some homes contracting out food services and (2) the increasing average size of nursing homes, since any of the homes that employ dietitians generally would only employ one regardless of size. Approximately seven percent of all dietitians are employed in nursing homes, a relatively high percentage in comparison with most of the other key occupations.

The social concern which is encouraging the employment of therapists in nursing homes also is causing rapid increase in requirements for *recreation workers*. Nursing homes employed 2,270 recreation workers in 1973 and are expected to require 3,930 by 1980 and 4,660 by 1985. About three percent of all recreation workers are employed in nursing homes.

Service Workers

Requirements for cleaning service workers are expected to increase very rapidly in nursing homes, encouraged by closer government inspection and control related to the expenditure of public funds for nursing home residents. Nursing homes employed 49,610 cleaning service workers in 1973 and their requirements are expected to reach 86,770 by 1980 and 117,040 by 1985. This growth in requirements for cleaning service workers is faster than the projected growth of the industry and cleaning service workers as a percent of total industry employment are projected to increase from about 8.5 percent in 1973 to almost 10 percent in 1980 and 11.30 percent in 1985.

Compared with the very rapid increase in requirements for cleaning service workers, requirements for food service workers taken as a whole are expected to grow more slowly. However, among the various food service occupations, requirements for some workers are expected to grow much faster than others. A very small increase in requirements is expected for *cooks*—from 31,130 in 1973 to 32,210 in 1980 and 32,830 in 1985. The need for all types of cooks should stabilize as more prepared foods are used. Complete frozen meals can be heated instantly in a microwave oven in the patient area. This innovation, while decreasing the relative need for cooks, is increasing the relative need for *other food service workers*, including tray preparers, food runners, and other kitchen workers not involved in the actual cooking of food. Requirements for these workers are expected to increase from

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[22] Since the research was completed for this report, new regulations were published in the *Federal Register*, October 3, 1974, that require (1) day RN coverage at least during the day tour of duty be provided and (2) that there be an organized nursing service with a sufficient number of qualified nursing personnel to meet the total nursing needs of all patients in the facility. The extent to which this will alter the projections cannot be determined at this point. Many nursing homes met the requirements prior to the legislation. Rural nursing homes can be exempt from the RN requirement if certain criteria are met. In addition, the second requirement is subject to wide interpretation as to the actual number of nurses and aides required.

[23] Morris A. Horowitz and Harold M. Goldstein, *Restructuring Paramedical Occupations: A Case Study*, Final Report (Boston: Northeastern University, 1972, under contract with the U.S. Department of Labor, Manpower Administration); *Meeting Health Manpower Needs Through More Effective Use of Allied Health Workers*, U.S. Department of Labor, Manpower Administration, Manpower Research Mimeograph No. 25, 1973.

26,769 in 1973 to 45,180 in 1980 and 54,170 in 1985. Requirements for *dishwashers* are expected to increase from 7,460 in 1973 to 11,170 in 1980 and 13,260 in 1985. About four percent of all cooks, three percent of all dishwashers, and five percent of all other food service workers were employed in nursing homes in 1973.

The various health service occupations differ widely in the rate of increase in their requirements. Requirements for *health aides, except nursing*, such as aides to therapists, are expected to grow very rapidly—from 5,420 in 1973 to 10,480 in 1980 and 12,430 in 1985. These increases are in line with the increases in requirements for therapists and about three percent of these health aides are employed in nursing homes.

The two health service worker categories, *nursing aides, orderlies, and attendants*, and *practical nurses*, together comprise over half of the employees in nursing homes.[24] Requirements for practical nurses are expected to increase very rapidly from 61,330 or about 10.5 percent of all nursing home employees in 1973 to 98,990 or 11.3 percent in 1980 and 121,910 or about 11.8 percent in 1985. About 14 percent of all practical nurses work in nursing homes. The increasing relative importance of practical nurses is related to the previously discussed decline in the relative importance of registered nurses, as health workers increasingly assume duties which best utilize their training and experience. The most important occupation in nursing homes, from the standpoint of size, is nursing aides, orderlies, and attendants. About one nurse aid in four is employed in a nursing home. In 1973, they accounted for almost 42 percent of all nursing home employees, and there were about four times as many of these workers as practical nurses, the next largest occupation. Employment requirements for these workers are projected to increase from 244,400 in 1973 to 356,230 in 1980 and 400,320 in 1985. Although numerically a very large increase, the rate of growth is slower than that projected for the total industry, and by 1985 these workers are expected to represent silghtly less than 39 percent of all employees in this industry.

Requirements for all personal service workers are expected to increase very rapidly. The only key occupation in this category is *housekeeper*. This group includes executive housekeepers and housekeepers on floors, or in linen rooms, kitchens, dining rooms, etc. The projected increase in requirements from 8,400 in 1973 to 14,930 in 1980 and 19,990 in 1985 is related to the growth of the average size of nursing homes which requires additional supervisory positions and greater specialization in duties. Approximately six percent of all housekeepers work in nursing homes.

Other Key Occupations

Only two key occupations are not professional, technical, or service occupations. In 1973, 30,550 *health administrators* were employed in nursing homes. This number is expected to increase to 47,050 in 1980 and 61,320 in 1985. The need for more assistant administrators as the average size of nursing homes continues to grow should cause most of the projected increase in employment. About 26 percent of all health administrators work in nursing homes—the greatest concentration of any occupation in nursing homes.

The final key occupation is *laundry and drycleaning operatives*. In 1973, 9,680 were employed in nursing homes and requirements are expected to reach 15,280 in 1980 and 18,130 in 1985. This increase is slightly faster than the total nursing home industry. About four percent of all laundry and drycleaning operatives work in nursing homes.

Annual Openings

The discussion of key occupations up to this point has been concerned with growth. Job openings for new workers also arise from the need to replace those who retire, die, or leave the labor force for other reasons and those who transfer to another occupation.

Often an occupation which has very little growth still has a large number of openings each year resulting from deaths, retirements, and other separations from the labor force. Table 5 lists projected annual openings in the nursing home industry for each of the key occupations, broken out by growth and replacement needs. Replacement needs are far greater than growth openings in four of the occupations: dietitians; RN's; cooks; and nursing aides, orderlies and attendants. The largest number of total annual openings is for nursing aides, orderlies, and attendants, 31,200. This is three times greater than the next largest occupation, practical nurses, with 10,900 annual openings. Cleaning workers follow

[24] See footnote 22, page 6.

with 8,800 projected annual openings. Food service workers and health administrators each have 4,400 expected annual openings. About 3,450 positions for RN's are expected to open each year during the 1975-85 period. All other key occupations have fewer than 2,000 projected annual openings.

The data in Table 5, however, omits the important consideration of transfers. Persons who remain in the labor force but transfer to a different occupation cause additional annual openings. For instance, a food service worker who prepares trays may transfer to a job as a cook when a position becomes available, leaving a vacancy for a new tray preparer. This type of transfer increases the number of annual openings in an occupation in an economy-wide analysis.

Transfers may also occur between industries within the same occupation. For example, a practical nurse may leave a job in a nursing home to take one in a hospital or in the health clinic of a manufacturing plant. While this type of transfer does not change the number of annual openings in an economy-wide analysis, it does effect the openings in individual industries.

Since very little information is available on occupational transfers, no attempt has been made to include transfers in the discussion of annual openings. Nevertheless, the availability of persons to work in any industry is greatly affected by the supply-demand situation for these workers across all industries and in related occupations. For this reason, the next section will survey the economy-wide outlook for key occupations.

Table 5. Average annual openings for "key occupations" in the nursing home industry, 1973-85

Occupation	Average annual openings		
	Total	Growth	Replacements
Professional, technical, kindred			
Dietitians	210	50	160
Registered nurses	3,450	750	2,700
Therapists	1,050	650	400
Recreation workers	330	200	130
Service workers			
Cleaning workers	8,800	5,300	3,500
Cooks, except private	1,550	150	1,400
Dishwashers	850	480	370
Food service workers, except private	4,400	2,300	2,100
Health aides, except nursing	1,100	575	525
Nursing aides, orderlies, attendants	31,200	13,000	18,200
Practical nurses	10,900	5,100	5,800
Housekeepers, except private	1,800	1,000	800
Other			
Health administrators	4,400	2,600	1,800
Laundry, dry cleaning operators	1,400	700	700

SOURCE: Bureau of Labor Statistics

CHAPTER 3

Supply-Demand Outlook for Key Occupations

This section presents a supply-demand analysis on the econmy-wide level for some of the "key occupations." The number of prospective annual new entrants into an occupation compared to projected annual openings for that occupation in all industries can provide some insights into the ease or difficulty the nursing homes may experience in filling their openings.

Because of the lack of data, estimates of supply can be made only for a few occupations. Some occupations that require formal education beyond the secondary level can be analyzed from information provided by the Office of Education and other sources on numbers of earned degrees, both current and projected, and information on the tendency for graduates of a specific curriculum to enter the field in which they were prepared. Additions to supply include new graduates of formal training programs, transfers from other occupations, and persons who reenter the occupation after a temporary leave from the work force.[25]

A supply-demand analysis of selected key occupations in the nursing homes which require formal education beyond the secondary level is given in Table 6. For each occupation the anticipated average annual openings are given both in the total economy and in the nursing home industry. A description of the required training and the number of persons who completed that training in 1972 follows, with an analysis of the anticipated number of annual new entrants in relation to the expected economy-wide annual openings.

Table 6 indicates that economy-wide requirements and supply are expected to be in rough balance by 1985 for RN's, physical therapists, occupational therapists, and dietitians. Demand is expected to continue to exceed supply somewhat for licensed practical nurses, and is expected to greatly exceed the supply of professionally prepared recreation workers.

No reliable supply estimate can be made for those occupations for which on-the-job training provides the majority of the entrants. The source of workers for these occupations includes the unemployed, new entrants, and workers wishing to transfer to another occupation. Obviously, there is no figure which can be used in a comparison with annual openings to determine the prospective supply-demand situation for the occupation across all industries. However, the projected number of average annual openings in all industries compared with those expected in the nursing home industry can give some indication of the competition the nursing home industry can expect to face in attracting these workers.

Table 7 gives the expected annual openings both economy-wide and in nursing homes, for those key occupations which do not generally require formal post-secondary education. Although on-the-job training is usually provided, other training is available in some geographic areas. The number of persons completing these programs in 1972 is given with a description of the anticipated economy-wide growth of the occupation.

Requirements for all of the key occupations in which workers are generally trained on-the-job, with the exception of cooks, are expected to grow very rapidly during the projected period. While no supply-demand analysis can be made for these occupations, the conclusion can be drawn that with strong economy-wide demand, nursing homes must offer an attractive wage and benefit package in order to attract the most qualified workers and perhaps a sufficient number.

It must be emphasized that this analysis is across all industries and not for any one specific industry. The picture could be very different in the nursing home industry and differ among localities. Workers are attracted to a place of employment for many reasons: salary, benefits, working conditions, personal satisfaction, location, hours, etc. The ability of nursing homes to attract its required number of nurses, therapists, and other workers will depend on their relative stance in these areas of competition. If a nursing home has the only openings for practical nurses in a small town, and that home pays relatively low wages and only has openings for the night shift, a prospective employee who is a practical nurse may decide instead to take a higher paying job as a salesperson during the day. In other words, persons in a particular occupation making up part of the projected supply may transfer out of an occupation rather than take an unattractive job in their area of competence. If nursing homes are to have sufficient employees even in those jobs for which adequate economy-wide supply is pro-

[25] For more detail on methods of estimating supply, see *Occupational Supply: Concepts and Sources of Data for Manpower Analysis*, Bulletin 1816, (Bureau of Labor Statistics, 1974).

Table 6. Growth of selected key occupations in the nursing home industry that require formal post-secondary education, 1973-85

Occupation	Average annual openings			Available training data	Economy-wide supply-demand analysis
	Total	Growth	Replacement		
Registered nurses in:					
Total economy	75,000	24,000	51,000	In order to be licensed a person must graduate from a school approved by a State board of nursing and pass the State board examination. All nursing schools require a high school diploma for entry. In the academic year 1970-71, about 47,000 RN's graduated from associated degree, bachelor's degree, and diploma programs.	Recent rapid expansion of nursing programs are expected to increase the number of graduates over the 1973-85 period so that the anticipated supply for RN's is expected to be in rough balance with projected employment requirements by the mid-1980's.
Nursing home industry	3,450	750	2,700		
as a percent of total economy	5%				
Practical nurses in:					
Total economy	70,000	30,000	40,000	All states regulate the preparation and licensing of practical nurses. To be licensed, students must pass an examination. The required course generally lasts one year, and is given in junior colleges, local hospitals, health agencies, and public schools. In 1972 about 38,000 persons completed the required course.	Training programs for practical nurses are expanding. However, if requirements are to be met, many workers will have to be drawn from sources other than new graduates – workers with the required training who are employed in other occupations or who are not in the work force.
Nursing home industry	10,900	5,100	5,800		
as a percent of total economy	16%				
Dietitians in:					
Total economy	3,100	800	2,300	A bachelor's degree; preferably with a major in foods and nutrition or institutional management, usually available in departments of home economics, is the basic educational requirement for dietitians.	New entrants into the field of dietitics are expected to be in rough balance with projected requirements by the mid-1980's.
Nursing home industry	210	50	160		
as a percent of total economy	7%				
Recreation workers in:					
Total economy	5,500	2,700	2,800	Generally, recreation directors must have a bachelor's degree with a major in recreation, social science, or physical education. Activity specialists should have an associate or bachelor's degree in recreation or in one of the arts.	Requirements for persons with special preparation as recreation workers are expected to greatly exceed supply by the mid-1980's.
Nursing home industry	330	200	130		
as a percent of total economy	6%				
Occupational therapists[1]					
Total economy	1,100	600	500	A bachelor's degree in occupational therapy is required to enter this profession. About 900 persons graduated in occupational therapy in 1972.	With the recent and planned expansion of programs in occupational therapy new entrants are expected to be in rough balance with projected requirements by the mid-1980's.
Physical therapists[2]					
Total economy	2,200	1,000	1,200	All states require a license to practice physical therapy. Applicants for a license must have a bachelor's degree in physical therapy and pass a State board examination. About 1,300 persons graduated with degrees in physical therapy in 1972.	With the recent and planned expansion of programs in physical therapy, new entrants are expected to be in rough balance with projected requirements by the mid-1980's.

[1&2] The projected number of average annual openings for occupational therapists and physical therapists are available for the total economy. However, the projections for the nursing home industry only are available for the broader category of therapists, with an expected 1,050 average annual openings (650 resulting from growth and 400 from replacement needs). Although no direct comparison can be made between the industry projections for therapists and the economy-wide projections for occupational and physical therapists, these two occupations comprise most of the industry group.

SOURCE: Supply information – Office of Education
Annual openings and supply-demand analysis – Bureau of Labor Statistics

jected by 1985, nursing homes must offer competitive salaries, benefits, and working conditions.

Furthermore, it must be emphasized that projected supply is based on continuing trends over the past decade in college enrollment and choice of major fields. In the case of most health occupations, supply also is projected according to stated expansion plans of the school with existing programs.[26]

Finally, the requirements projections are based on a continuing pattern in the delivery of care in nursing homes. If this were to change substantially, the expected requirements for individual occupations could be altered significantly. Thus, while the expected economy-wide situation of the key occupations during the projected period can give some direction for the nursing home industry, continuing reassessment of the industry's occupational structure and total employment, graduates of training programs, and ability to compete with other industries for employees is needed.

[26] *The Supply of Health Manpower: 1970 Profiles and Projections to 1990*, (U.S. Public Health Service, Health Resources Administration, 1974), Publication No. HRA-74-29.

Table 7. Growth of selected key occupations in the nursing home industry that prepare new entrants primarily through on-the-job training, 1973-85

Occupation	Average annual openings			Available training data[1]	Growth analysis
	Total	Growth	Replacement		
Nursing aides, orderlies and attendants				About 23,000 persons completed some type of special training as a nursing aide, orderly, or attendant in 1972. Graduation from high school is not usually required in this occupation.	Requirements for nursing aides, orderlies, and attendants are expected to grow very rapidly through the mid-1980's.
Total economy	100,000	36,000	64,000		
Nursing home industry	31,200	13,000	18,200		
as a percent of total economy	31%				
Cooks and chefs				About 4,100 persons completed special training courses for cooks and chefs in 1972.	Employment requirements for cooks and chefs are expected to grow only moderately through the mid-1980's.
Total economy	52,000	10,000	42,000		
Nursing home industry	1,550	150	1,400		
as a percent of total economy	3%				
Occupational therapy aides[2]				About 300 persons received special training as occupational therapy aides in 1972.	Projected requirements reflect expected very rapid growth for occupational therapy aides through the mid-1980's.
Total economy	1,200	700	500		
Physical therapist assistants and aides[3]				About 400 persons received special training as physical therapist assistants and aides in 1972.	Projected requirements are expected to grow very rapidly for physical therapist assistants and aides through the mid-1980's.
Total economy	2,000	1,100	900		

[1] Although prior specialized education is not required beyond courses available in traditional secondary schools in these occupations, some other training is available such as vocational education and job corps. Since this training usually will make a job seeker more attractive to an employer, the number of persons completing these programs in 1972 is given for each of these occupations.

[2&3] The projected number of average annual openings for occupational therapy aides and physical therapist assistants and aides are available for the total economy. However, the projections for the nursing home industry only are available for the broader category of health aides, except nursing, with an expected 1,100 average annual openings (575 resulting from growth and 525 from replacement needs). Although no direct comparison can be made between the industry projections for health aides, except nursing, and the economy-wide projections for occupational therapy aides and physical therapist assistants and aides, these two occupations comprise most of the industry group.

SOURCE: Supply information – Office of Education
Annual openings and growth analysis – Bureau of Labor Statistics

APPENDIX A

Methods for Projections of Manpower Requirement

The Bureau of Labor Statistics has developed projections that encompass a number of interrelated components and permit a comprehensive view of tomorrow's economy and its manpower needs. These projections cover labor force, hours of employment, output per man-hour, potential demand, gross national product or GNP, the composition of demand, output, and productivity for detailed industry groups and detailed occupations.[27] The methods and assumptions used to develop the projected 1985 manpower requirements presented in this report are the same as those used in other Bureau of Labor Statistics studies of future occupational needs. These are briefly summarized in the following sections.

Projection methods: total economy

The first step in making industry and occupational projections is to use statistics developed by the Bureau of the Census of total population in the target year, and its composition by age, sex, and color. As a second step, the Bureau of Labor Statistics develops projections of the labor force by age, sex, and color on the basis of changing labor force participation rates for each of these groups. These changes reflect a variety of factors, including changing educational standards, retirement practices, and size of families.

Labor force projections are then translated into the level of gross national product (GNP) that can be produced by a fully employed labor force.[28] GNP is derived by subtracting unemployment from the labor force and multiplying the result by an estimate of output per worker in the target year of the projection. Allowances must be made for average growth in productivity and expected changes in hour of work.

The next step is to distribute this potential growth in real GNP among the major components of GNP: consumer expenditures, business investment, government expenditures—Federal, State, and local—and net foreign demand.

After calculating and distributing potential GNP growth among its major categories, projections are developed for each of the major demand categories, such as the amount spent by consumers for food, clothing, rent, automobiles, drugs, cosmetics, trips abroad, medical expenses, and other goods and services. For each of the major GNP demand categories, a different procedure is followed in allocating demand to the producing industry.

Once estimates are developed for the product or service to be purchased, the production load is allocated not only to the various industries which make the final product but also to the intermediate and basic industries which provide raw materials, components, transportation, electric power, and other goods and services required in making final products. For this purpose, the Department of Commerce has developed an input-output table for the economy of the United States. This table shows transactions among industries; effects of such transactions can be traced among industries.

Estimates of production in each industry are then translated into employment requirements by projecting changes in output per man-hour in each industry and dividing this figure into output. Changes in output per man-hour are developed through studies of productivity and technological trends in all industries. These studies provide inputs to assess such things as potential competition among products, potential employment and economic effects of new technologies and inventions, and the effect of technological change on the occupational structure of industries.

As an independent check and to develop more detailed industry employment projections than allowed for by input-output tables, a regression analysis is conducted relating production and employment in various industries to the levels of final demand and other key variables. Also, detailed in-depth studies are conducted for several industries which result in projections of requirements based on a regression analysis of a variety of economic variables. Results of the regression analysis and input-output model are evaluated along with detailed industry analyses to develop final industry employment projections.

Projections of industry manpower requirements are then translated into occupational requirements. This calculation is made through the use of occupational composition patterns for all industries in the United States, which are sum-

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[27] A summary report of the Bureau's 1980 and 1985 projections with a more detailed statement on methodology has been published in *The Structure of the U.S. Economy in 1980 and 1985* (BLS Bulletin 1931, 1975).

[28] A 4-percent unemployment rate was assumed in the BLS projections.

[29] Matrices based on the classification of occupations in the 1960 Census of Population are available for 1960, 1967, 1970, and 1980, but these are not comparable because they only show the distribution of 160 occupations in 116 industries. (The convalescent institutions industry was not detailed until the 1970 census.)

marized in an industry-occupational matrix. This matrix, which is divided into 201 industry sectors, shows the composition of employment according to 422 occupations. These patterns are applied to current employment and to projected requirements by industry to estimate current employment and future requirements by occupation. In making these projections, allowance is made for changing occupational structures based on studies of the way each industry has changed in the past and is like to change in the future. To arrive at a total for the economy, future employment requirements for each occupation are aggregated across all industries.

For many occupations, requirements are projected on the basis of relationships to certain independent variables rather than on proportional representation in each industry. For example, employment requirements for automobile mechanics are projected on the basis of the expected stock of motor vehicles and their maintenance requirements, and elementary school teachers on trends in pupil-teacher ratios applied to projected school attendance. Projections developed independently are meshed with other occupational data in the matrix.

After estimating the requirements of each occupation, projections are prepared of the number of workers who will be needed as replacements. These separations from the labor force resulting from all causes including occupational transfers constitute a very significant portion of total manual training needs.

Tables of working life have been developed based on acturial experience for deaths and general patterns of labor force participation of each age. Withdrawals from the labor force can be projected for men and women separately in each occupation for which age and sex are known. The net effects of interoccupational transfers, however, are not known in any systematic fashion and can only be estimated in projecting manpower training needs. Some work to develop such estimates, however, is currently being conducted by the BLS using data collected in the 1970 Decennial Census.

Projection methods: health industries and occupations

The health sector is made up of seven industries: hospitals; offices of physicians; offices of chiropractors; offices of dentists; convalescent institution; health practitioners, not elsewhere classified (n.e.c.); and health services, n.e.c. Employment in the health occupations is strongly concentrated in the health industries. Therefore, independent projections of requirements for the health occupations covered in the Bureau's program of projecting industry and occupational manpower needs were used as controls in the 1980 and 1985 projected matrix for the health industries. In order to distribute the health occupations among industries, the 1970 census ratios were used if no other source was available. The projected employment of the major occupations in an industry gave a first approximate projection of the industry employment by extending the historical trend of the percent of the industry employment made up of the occupation. For instance, the ratio of dentists to all employment in offices of dentists was projected on historical trends. The projected figure for dentists employed in offices of dentists, divided by the projected ratio, gave an estimate of projected total employment in offices of dentists. The non-health occupations were projected using historical trends of ratios applied to the projected industry employment.

In a separate approach, the employment in all health industries, broken out into the two categories of hospitals and all other health industries, was projected by type of employment: private wage and salary, government (Federal, State, and local) and self-employed. These projections are made in the context of the total labor force projections; all industry projections must total to the projected labor force by class of worker. Ratios from the 1970 census, adjusted for changing trends, were used to breakout the two health industry groups into the seven health industries. This resulted in a second estimated employment projection for the seven health industries. Adjustments to individual industries were made in order for the two industry projection estimates to coincide.

The 1980 and 1985 employment requirements projections for the convalescent institutions industry were the result of the above process. For the purpose of this report, a 1973 occupational breakout was made for the convalescent institution industry. The total employment in all health industries in 1973 was determined from class of worker data. The 1973 ratio of convalescent industry employment to all health industry employment was estimated by interpolating between the 1970 and projected 1980 ratios. This 1973 ratio, applied to the 1973 employment in all health industries, results in the 1973 employment in convalescent institutions.

The convalescent institutions industry includes all inpatient facilities which provide nursing care except hospitals. About five percent are homes for the mentally retarded, emotionally disturbed, or other types which do not mainly serve the elderly.

Adjustments to eliminate workers in these institutions were made in two steps. (1) The entire occupation of child care workers was subtracted out and new ratios were calculated for all occupations in the convalescent home industry for 1970, 1973, 1980, and 1985. (2) The number of employees in nursing homes and personal care homes with nursing for 1970 was estimated by interpolating between the Master Facility Inventory Survey figures for 1969 and 1971 as reported by the National Center for Health Statistics.[30] The difference between this figure and the 1970 employment, adjusted for child care workers, in the convalescent institutions industry was assumed to be the "other" workers in these nonelderly institutions. In order to estimate these "other" workers in the 1973, 1980, and 1985 convalescent institutions industry matrix, the ratio of "other" workers to child care workers in 1970 was calculated and it was assumed that this ratio would remain constant. Applying this ratio to the number of child care workers in 1973 and their projected number in 1980 and 1985, and subtracting the resultant "other" workers from the adjusted convalescent industry totals for these years, yields the nursing home employment estimates and projections for 1973, 1980, and 1985. Finally, multiplying these industry figures by the new occupational ratios yields the occupation employment estimates and projections in the nursing home industry for 1973, 1980, and 1985, as are detailed in Appendix B.

[30] For 1969, see *Health Resources Statistics*, DHEW Pub. No. (HSM) 72-1509, 1971 Edition, p. 330; for 1971 revised figure, see *Inpatient Health Facilities as Reported From the 1971 MFI Survey*, DHEW Pub. No. (HRA) 74-1807, March, 1974, Table 10, p. 24.

APPENDIX B

Table B-1. Nursing home industry by detailed occupation, estimated employment 1973 and projected requirements 1980 and 1985

Occupation	1973		1980		1985	
	Ratio	Employment	Ratio	Employment	Ratio	Employment
Total, all occupations	100.00	583,010	100.00	872,900	100.00	1,035,750
Professional, technical, and kindred	10.48	61,100	8.99	78,470	8.73	90,420
Engineers, technical	.03	180	.03	260	.03	310
Medical workers, except technical	8.60	50,140	6.80	59,360	6.56	67,940
Dietitians	.42	2,450	.34	2,970	.30	3,110
Physicians, M.D., and D.O.	.06	350	.06	520	.06	620
Registered nurses	7.28	42,440	5.29	46,180	4.95	51,270
Therapists	.80	4,660	1.07	9,340	1.20	12,430
Health technologists and technicians	.23	1,340	.26	2,270	.28	2,900
Clinical lab technoligists and technicians	.06	350	.06	520	.05	520
Therapy assistants	.06	350	.08	700	.08	830
Other health technologists and technicians	.06	350	.09	790	.10	1,040
Technicians, except health	.02	120	.03	260	.03	310
Computer specialists	.02	120	.03	260	.03	320
Social scientists	.06	350	.08	700	.08	830
Psychologists	.06	350	.08	700	.08	830
Teachers	.24	1,400	.29	2,530	.29	3,000
Teachers, n.e.c., except college and university	.18	1,050	.23	2,010	.23	2,380
Writers, artists, entertainers	.09	520	.10	870	.10	1,040
Other professional, technical	1.19	6,940	1.37	11,960	1.33	13,780
Accountants	.12	700	.13	1,140	.13	1,350
Clergy	.06	350	.07	610	.06	620
Religious, except clergy	.10	580	.12	1,050	.11	1,140
Personnel and labor relations	.10	580	.13	1,140	.13	1,350
Recreation workers	.39	2,270	.45	3,930	.45	4,660
Social workers	.29	1,690	.33	2,880	.33	3,420
Vocational, education counselors	.05	290	.06	520	.06	620

NOTE: All occupational groups and subgroups are listed, as well as all occupations which comprise at least 0.05 percent of industry employment. Because of rounding, some of the individual groups or subgroups may not equal totals.

SOURCE: Bureau of Labor Statistics.

Table B-1. Nursing home industry by detailed occupation, estimated employment 1973 and projected 1980 and 1985—continued

Occupation	1973		1980		1985	
	Ratio	Employment	Ratio	Employment	Ratio	Employment
Operatives	2.08	12,130	2.07	18,070	2.07	21,440
Operatives, except transportation	1.97	11,490	2.02	17,630	2.03	21,030
Other operatives, except transportation	1.95	11,370	2.01	17,540	2.02	20,920
Clothing ironers and pressers	.12	700	.13	1,140	.13	1,350
Laundry, dry clean operatives, n.e.c.	1.66	9,680	1.75	15,280	1.75	18,130
Transportation equipment operatives	.11	640	.05	440	.04	410
Service workers	76.60	446,590	77.17	673,610	76.58	793,180
Cleaning service workers	8.51	49,610	9.94	86,770	11.30	117,040
Lodging quarters cleaners, except private	.88	5,130	.88	7,680	.89	9,220
Building interior cleaners, n.e.c.	5.17	30,140	5.89	51,410	6.71	69,500
Janitors and sextons	2.46	14,340	3.17	27,670	3.70	38,320
Food service workers	12.25	71,420	10.82	94,450	10.17	105,340
Waiters' assistants	.05	290	.06	520	.06	620
Cooks, except private	5.34	31,130	3.69	32,210	3.17	32,830
Dishwashers	1.28	7,460	1.28	11,170	1.28	13,260
Food counter, fountain workers	.11	640	.08	700	.07	720
Waiters	.88	5,130	.54	4,710	.36	3,730
Food service workers, n.e.c., except private	4.59	26,760	5.17	45,130	5.23	54,170
Health service workers	53.40	311,330	53.38	465,950	51.64	534,860
Health aides, except nursing	.93	5,420	1.20	10,480	1.20	12,430
Nursing aides, orderlies	41.92	244,400	40.81	356,230	38.65	400,320
Practical nurses	10.52	61,330	11.34	98,990	11.77	121,910
Personal service workers	2.21	12,880	2.85	24,880	3.31	34,280
Attendents, recreation and amusement	.06	350	.07	610	.08	830
Attendents, personal service, n.e.c.	.21	1,220	.21	1,830	.23	2,380
Hairdressers, cosmetologists	.45	2,620	.80	6,980	.99	10,250
Housekeepers, except private	1.44	8,400	1.71	14,930	1.93	19,990
Protective service workers	.23	1,340	.18	1,570	.16	1,660
Guards	.21	1,220	.17	1,480	.14	1,450
Laborers, except farm	.47	2,740	.47	4,100	.47	4,870
Gardeners, groundskeeper, except farm	.35	2,040	.36	3,140	.36	3,730
Vehicle washers, equipment cleaners	.04	230	.04	350	.04	410
Managers, officials, proprietors	5.52	32,180	5.86	51,150	6.44	66,700
Buyers, sales, loan managers	.12	700	.20	1,750	.22	2,280
Purchasing agents, buyers, n.e.c.	.09	520	.16	1,400	.17	1,760
Administrators, public inspectors	5.24	30,550	5.39	47,050	5.92	61,320
Health administrators	5.24	30,550	5.39	47,050	5.92	61,320
Other managers, officials, proprietors	.16	930	.27	2,360	.30	3,110
Office managers, n.e.c.	.13	760	.21	1,830	.24	2,490
Sales workers	.06	350	.06	520	.05	520
Sales workers, service, and construction	.06	350	.06	520	.05	520
Clerical workers	3.94	22,970	4.53	39,540	4.80	49,720
Stenographers, typists, secretaries	1.52	8,860	1.76	15,360	1.86	19,260
Secretaries, medical	.06	350	.08	700	.08	830
Secretaries, n.e.c.	1.24	7,230	1.44	12,570	1.52	15,740
Typists	.22	1,280	.24	2,100	.26	2,690
Office machine operators	.03	180	.02	180	.05	520
Other clerical	2.39	13,930	2.75	24,000	2.89	29,930
Bookkeepers	.99	5,770	1.09	9,520	1.11	11,500
Clerical supervisors, n.e.c.	.06	350	.07	610	.07	720
Payroll, time-keeping clerks	.06	350	.07	610	.06	620
Receptionists	.55	3,210	.64	5,590	.69	7,150
Statistical clerks	.07	410	.09	790	.10	1,040
Stock clerks, storekeepers	.10	580	.13	1,140	.13	1,350
Telephone operators	.12	700	.11	960	.10	1,040
Miscellaneous clerical workers	.23	1,340	.33	2,880	.39	4,040
Craft and kindred workers	.85	4,960	.85	7,420	.86	8,910
Construction craft workers	.38	2,220	.38	3,320	.40	4,140
Carpenters	.11	640	.10	870	.10	1,040
Painters, construction, maintenance	.16	930	.21	1,830	.23	2,380
Blue collar worker supervisors, n.e.c.	.17	990	.15	1,310	.13	1,350
Metal craft workers, except mechanical	.01	60	.01	90	.01	100
Mechanics, repairers, installers	.17	990	.22	1,920	.25	2,590
Heavy equipment mechanics including diesel	.09	520	.12	1,050	.12	1,240
Other craft and kindred workers	.12	700	.09	790	.07	720
Stationary engineers	.06	350	.05	440	.04	410